UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/713,420	11/15/2000	Mark John McGrath	450110-02761	3356

			EXAMINER
20999	7590	04/19/2004	FLETCHER, JAMES A

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NEW YORK, NY 10151

ART UNIT	PAPER NUMBER
2615	

DATE MAILED: 04/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _05 February 2004_.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1,6,7,9-14,16-20,26,28-33 and 35-42_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1,6,7,9-14,16-20,26,28-33 and 35-42_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Specification

1.   The title of the invention is not descriptive. A new title is required that is clearly

indicative of the invention to which the claims are directed.

2.   The disclosure is objected to because of the following informalities: Page 2, line 7

contains the text "a result of a limited the bandwidth available..." The examiner believes

this should read --a result of a limited bandwidth available--

Further, page 10, lines 9 contains the text "illustrated as n arrangement..." The

examiner believes the text should read --illustrated as an arrangement--

Appropriate correction is required.

Response to Arguments

3.   Applicant's arguments with respect to claims 1 and 20 have been considered but

are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

5.   Claims 1, 9-14, 16, 19-20, 28-33, 35, and 38 are rejected under 35 U.S.C. 103(a)

as being unpatentable over Veltman (WO 94/30014) in further view of Moriyama et al

(5,572,333).

Regarding claims 1 and 20, Veltman discloses a signal processor and signal processing method comprising:

- a data compression encoder which operates to compression encode source data into compression encoded data having a variable compressed data rate (Page 40 lines 20-25 "a method of generating a bit stream by multiplexing non-compressed auxiliary information with an information stream. The information stream is obtained by compressing fixed-size units of an information signal with a varying compression ratio to provide varying-sized units of the information stream");

- the data compression encoder generating the compression encoded data in accordance with a compression encoding algorithm, (Page 108 line 21 - Page 109 line 8 describes an encoder that would reduce its data output to a very low rate when presented with a nearly static scene. Also, Page 107 line 23-Page 108 line 1 "when all the video input signal has been converted into the multiplexed bit stream...the encoder may continue to generate other packets if data streams for such packets are still to be inserted in [the data stream]").

- the compressed data rate is varied by the compression encoding algorithm in dependence upon an estimated comparison of the source data and a version of the source data produced by decompressing the compression encoded data (Page 43, lines 16-20 "The multiplexer includes a controller that controls the information stream divider and the auxiliary information divider by emulating decoding of the bit stream by a system target decoder")

- a multiplexer coupled to the data compression encoder and arranged in operation to concatenate the compressed data and descriptive metadata into a concatenated data stream (Page 43, lines 14-16 "A multiplexer sequentially arranges the information stream portions and the auxiliary information portions to provide the bit stream"), the metadata describing the source information (Page 42, lines 19-20 "The auxiliary information may be directory information for the information stream"), and

- a control processor coupled to the multiplexer and arranged in operation to control the multiplexer to the effect that a combined data rate of the concatenated data stream is less than or equal to a pre-determined maximum (Page 93, lines 20-23 "the video encoder will...generate I-pictures at a reduced rate, i.e., at the rate of 12.5/N Hz, if the time stamp coding frequency is reduced").

- wherein the control processor is coupled to the compression encoder and arranged in operation to influence the compression coding algorithm to an effect of controlling the compressed data rate produced by the compression encoder to achieve a predetermined minimum, (Page 107, lines 6-9 "The video encoder can generate additional video stream to refill the video output buffer by reducing the video compression ration when the video output buffer approaches empty")

Veltman discloses changing compression rates in response to the requirements of the channel as analyzed and discussed above, but do not specifically disclose doing so by changing the quantization of the encoded data.

Moriyama et al teach the use of a quantization controller quantising the encoded data to produce the compression-encoded data (Col 7, lines 30-31 "The quantizer 15 quantizes the coefficient after DCT").

As taught by Moriyama et al, quantising of data to compress it for transport or storage is a well known, widely used, and commercially available method of compression.

Therefore, it would have been obvious to one of ordinary skill in the art to modify Veltman to compress the data using a quantization method.

Moriyama et al teach the influence of the compression encoding algorithm being affected by controlling the quantization of the encoded data to achieve a predetermined minimum (Col 7, lines 47-51 "the quantization controller 24 alters the quantizer scale of the quantizer 15 based on the amount of occupying data in such a way that the buffer memory 18 does not overflow or underflow, thus controlling the amount of data to be input to the buffer memory 18"), the influence of the compression encoding algorithm being affected by controlling the quantization of the encoded data to provide the predetermined minimum data rate (Col 7, lines 42-43 "The data is read out from the buffer memory 18 at a constant rate") and a data rate provided for the metadata being determined in accordance with a difference between the pre-determined minimum data rate and the pre-determined maximum data rate (Col 7, lines 47-51 "the quantization controller 24 alters the quantizer scale of the quantizer 15 based on the amount of occupying data in such a way that the

buffer memory 18 does not overflow or underflow, thus controlling the amount of data to be input to the buffer memory 18").

As taught by Moriyama et al, adjusting the quantization of the encoded data to achieve a rate between a predetermined maximum and minimum is a well known, widely used, and commercially available method of achieving a compression rate to feed a predetermined data rate.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Veltman to use quantization methods of compression, and to vary those quantization methods to achieve a desired data rate range.

Regarding claims 9, 10, 28, and 29, Veltman discloses a signal processor and method wherein the encoded representation of the source data is formed using a discrete cosine transform or MPEG (Page 114, lines 2-4 "the invention has...been described with respect to the MPEG-1 and MPEG-2 standards").

Regarding claims 11 and 30, Veltman discloses a signal processor and method wherein the compression encoder produces data as encoded data frames (Page 61, lines 18-22 "The multiplexer assembles the preliminary multiplexed bit stream...into packets, and the packets into packs").

Regarding claims 12 and 31, although Veltman does not specifically describe a signal processor and method wherein the compressor determines the target bit rate as an average target data rate of TBR_{ave} = (Maximum bit rate - metadata rate) / (frames over which the metadata is to be concatenated to the encoded signal), the examiner maintains that the equation provided by the applicant is the inherent data rate of a

system with the requirements of storing strings of both compressed and uncompressible

data over a fixed period of time..

Regarding claims 13 and 32, although Veltman does not specifically disclose a

signal processor and method wherein the number of frames over which the metadata is

to be concatenated is reduced by 1 upon the encoding of each frame, and the amount

of the metadata is reduced by the amount of data symbols in the encoded frame upon

the encoding of each frame, the examiner maintains that the relationship described by

the applicant is inherent in a data storage system wherein the amount of data stored in

a single frame is subtracted from the total amount of data to be stored when that frame

is written.

Regarding claims 14 and 33, Veltman discloses a signal processor and method

wherein the source data is representative of audio or video signals, or both (Page 113,

lines 20-25 "The invention has been described with respect to a system in which both

audio and video streams are included n the multiplexed bit stream. However, the

invention can be applied equally well to systems in which either an audio stream or a

video stream is included in the multiplexed bit stream without the other").

Regarding claims 16 and 35, Veltman discloses a signal processor and method

wherein:

- the signal processor produces a concatenated data stream of compression

  encoded data and metadata (Page 8, lines 21-25 "The bit stream...has a multi-

  layer structure, and includes various headers in a multiplex layer and the audio

stream and the video stream in a signal layer. In this structure, plural packs

serially arranged in time"), and

- a recording drive records the concatenated data stream onto a recording medium

  (Page 54, lines 23-24 "The medium can be any medium suitable for storing or

  distributing a digital bit stream"), the predetermined maximum data rate of the

  combined data rate of the concatenated data stream being determined in

  accordance with the bandwidth of the recording medium. The examiner

  maintains that a data stream whose bit rate was higher than the capacity of the

  recording medium would result in a defective recording system. Therefore, a

  limitation of the data rate to the maximum available in the recording medium is

  inherent in an operating system.

Regarding claims 19 and 38, Veltman discloses a communications apparatus

and method comprising:

- a signal processor that produces a concatenated data stream, including

  compression encoded source data and metadata (Page 8, lines 21-25 "The bit

  stream...has a multi-layer structure, and includes various headers in a multiplex

  layer and the audio stream and the video stream in a signal layer. In this

  structure, plural packs serially arranged in time"), and

- a transmission channel having a predetermined bandwidth, wherein the

  predetermined maximum data rate of the concatenated data stream is

  determined in dependence upon the predetermined bandwidth (The examiner

  maintains that a data stream whose bit rate was higher than the capacity of the

transmission channel would result in a defective recording system. Therefore, a limitation of the data rate to the maximum available in the recording medium is inherent in an operating system).

6.   Claims 17, 18, 36, and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Veltman and Moriyama et al as applied to claims above, and in further view of Iwamoto et al (5,974225).

Regarding claims 17 and 36, although the combination does not specifically describe a signal processor and method wherein the data is recorded in helical scan tracks on the recording medium, Iwamoto et al describes a system that records compressed and metadata in helical scan tracks on a tape. (Col 2, lines 30-34 "a recording means for recording on a predetermined number of slanted tracks on the tape the plurality of data blocks to each of which a GOP identifying code has been added"). This technology is known and readily available, and it would have been obvious to one of ordinary skill in the art at the time of the invention to use a tape recorder with a helical scan format.

Regarding claims 18 and 37, although neither the combination nor Iwamoto specifically describe a signal processor and method wherein the encoded data is divided into frames and the recording drive operates to record one frame per track, metadata being recorded in the remainder of the track, the examiner takes official notice that the number of pictures, blocks, frames, or groups of pictures recorded on an individual track is a design choice, and is not a patentable feature.

7.   Claims 39-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Veltman and Moriyama et al as applied to claims above, and further in view of

Azadegan et al (5,819,004).

Regarding claims 39 - 42, although the combination does not specifically

describe a computer readable medium with a program that causes the computer to

operate the data processing function and method, Azadegan et al teach such a medium

(Col 67, lines 19-22 "The present invention includes a computer program product which

is a storage medium including instructions which can be used to program a computer to

perform a process of the invention.") Since a computer is a versatile device capable of

a wide variety of functions, it would have been obvious to one of ordinary skill in the art

at the time of the invention to implement it as a computer program.

8.   Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Veltman

and Moriyama et al as applied to claims above, and further in view of Dieterich

(6,100,940).

Regarding claim 6, although Veltman does not specifically describe a signal

processor and method wherein the control processor:

- determines a target data rate dependent upon an amount of the metadata to be

   concatenated into the concatenated data stream, and

- controls the compression encoder to maintain the target bit rate, Dieterich

   describes a signal processor that allows the encoder's data rate to be adjusted

   for varying amounts of metadata (Col 6, lines 40-43 "the side information...can

   be used by the rate control module"). Since the metadata cannot be compressed,

and since it is vital to the proper decoding of the signal, it would have been obvious to one of ordinary skill in the art at the time of the invention to have the compression parameters vary according to the amount of metadata that was required to be recorded or transmitted.

9.   Claims 7 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Veltman and Moriyama et al as applied to claims above, and further in view of Dieterich.

Regarding claims 7 and 26, although the combination does not specifically describe a signal processor and method wherein the target bit rate is pre-set at a percentage of the maximum bit rate and the amount of metadata to be added, Veltman describes a system where the target bit rate is the maximum (Col 6, lines 40-45 "the side information ...can be used by the rate control module to determine whether the buffer fullness is at a state that will allow the use of a finer quantization scale"). In a system with a maximum data rate, having a signal output that does not exceed that data rate is vital to the proper performance of the system. Including a safety margin in that data rate is standard engineering practice. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide a target bit rate that is related to the maximum bit rate.

Conclusion

10.   Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the date of this final action.

11.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to James A. Fletcher whose telephone number is (703)

305-3464. The examiner can normally be reached on 7:45AM - 5:45PM M-Th, first

Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Andrew Christensen can be reached at (703) 308-9644.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
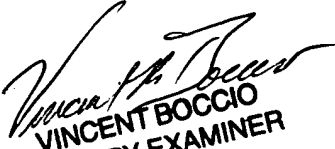
Washington, DC 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only).

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal

Drive, Arlington, VA Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

JAF
April 7, 2004

VINCENT BOCCIO
PRIMARY EXAMINER